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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/771,374	01/26/2001	Kalpesh Dhanvantrai Mehta	10559-177001 / P8237	6479

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FISH & RICHARDSON, PC
12390 EL CAMINO REAL
SAN DIEGO, CA 92130-2081

EXAMINER	
ZHEN, LI B	
ART UNIT	**PAPER NUMBER**
2194	

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/771,374	MEHTA, KALPESH DHANVANTRAI	
	Examiner	Art Unit	
	Li B. Zhen	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4,5,9,10 and 14-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4,5,9,10 and 14-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 4,5,9,10 and 14-20 are pending in the current application.

2. In view of the appeal brief filed on 06/27/2005, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 4,5,9,10 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,363,445 to Jeddeloh in view of U.S. Patent No.**

5,884,051 to Schaffer et al. [hereinafter Schaffer, cited in the previous office action].

5. As to claim 18, Jeddeloh teaches the invention substantially as claimed including a method, comprising:

assigning an access value [weighted bandwidth; col. 4, lines 10 – 35] and a relative priority value [priority rank of each device to determine which of the bus mastering devices shall access the bus 54; col. 4, lines 35 – 45] to each of a plurality of computer processes [mastering devices 56A-56N; col. 3, line 63 – col. 4, line 9] which request access to a shared computer resource [bus resources are allocated among the devices in a manner which allows the faster devices to have more frequent access to the bus; col. 4, lines 45 – 64], where the priority value can be high priority [highest priority rank; col. 5, lines 29 – 50] or low priority [lower priority rank; col. 4, lines 45 – 63];

first providing access to processes whose access value represents high priority [In block 104, a bus access request is serviced for the device which request bus resources with the highest priority rank; col. 5, lines 29 – 49] and whose access value represents that access should still be granted [Flow from block 112 also continues to block 118 if the current weighted bandwidth of the serviced device is not equal to zero; col. 5, lines 59 – 65], and after granting each access, adjusting an access value [In block 106, the current weighted bandwidth of the serviced device is decremented; col.

5, lines 29 – 50] associated with said each access, to indicate that additional access has been granted [col. 5, lines 50 – 65];

determining that all high priority requests have access values that indicate that no additional access should be granted [In block 112 the bus arbiter determines whether the current weighted bandwidth of the serviced device is equal to zero. If so, in block 114, the priority rank of the serviced device is set to the lowest value and the priority rank of those devices which previously had a lower priority rank than the serviced device is incremented; col. 5, lines 50 – 59];

responsive to said determining, providing access to low priority requests whose access values represent that access should be granted, and adjusting access values after granting the access [When the value of the current weighted bandwidth is equal to a minimum value, the priority rank of the device is set to the minimum value and the priority rank of the devices which previously had a lower priority rank is incremented; col. 4, lines 45 – 63]; and

after determining that both the high priority requests and low priority requests each have access values that represent no further access should be granted, starting a new access with new access values and priority values [block 120, for each device, the ratio of the value stored in the data transfer count register corresponding to the device to the value stored in the total data transfer count register is determined. In block 122, each ratio is compared to the ratio of the corresponding desired weighted bandwidth for the device divided by the sum of all of the desired weighted bandwidths. If the values

differ greatly, the desired weighted bandwidth may be either increased or decreased to more closely match the data transfer ratio; col. 5, line 65 – col. 6, line 20].

6. As to access cycles, Jeddeloh teaches an arbiter logic controlling access to a bus [col. 3, line 63 – col. 4, line 10] but does not specify access cycles.

However, Schaffer teaches shared resource [col. 5, lines 15 – 27] access based on priority levels [programmable fixed priority and dynamic priority; col. 5, lines 29 – 43] during access cycles [col. 12, lines 47 – 64].

7. It would have been obvious to a person of ordinarily skilled in the art at the time of the invention to apply the teaching of access cycles as taught by Schaffer to the invention of Jeddeloh because this provides for a fair arbitration scheme when several masters all having equal master dynamic priority levels need to equally share the bandwidth of the bus [col. 10, lines 55 – 60 of Schaffer].

8. As to claim 19, this is a product claim that corresponds to method claim 18; note the rejection to claim 18 above, which also meets this product claim.

9. As to claim 20, this an apparatus claim that corresponds to method claim 18; note the rejection to claim 18 above, which also meets this apparatus claim. As to the additional limitations, Jeddeloh as modified teaches a controller device [controller 103, Fig. 1; col. 4, lines 46 – 61 of Schaffer], having a first port for connecting to a shared resource [port 116, Fig. 1; col. 4, lines 46 – 62 of Schaffer], and at least one second port for connecting to a plurality of different processes which are requesting access to the

shared resource [col. 5, lines 29 – 43 of Schaffer] and a memory operating to store access values [col. 11, lines 1 – 29 of Schaffer].

10. As to claims 4, 9 and 14, Jeddeloh as modified teaches at least one of the computer processes is an isochronous process [col. 4, lines 13 – 34 of Jeddeloh].

11. As to claims 5, 10 and 15, Jeddeloh as modified teaches at least one of the computer processes is an asynchronous process [col. 4, lines 13 – 34 of Jeddeloh].

12. As to claim 16, Jeddeloh as modified teaches the controller is a memory controller [controller 103, Fig. 1; col. 4, lines 46 – 61 of Schaffer].

13. As to claim 17, Jeddeloh as modified teaches the shared memory resource is a shared memory bank [col. 11, lines 1 – 29 of Schaffer].

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,339,443 to Lockwood teaches arbitrating multiprocessor accesses to shared resources.

U.S. Patent No. 6,378,051 to Henson et al. teaches interrupt signal prioritized shared buffer memory access.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Li B. Zhen
Examiner
Art Unit 2194

lbz
September 12, 2005

MENG-AI T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100